S
632.6
3232
L10esz
1980

Sullins, Monty
Efficacy of
strychnine and
zinc phosphide
baits for
controlling black-
tailed prairie

STATE DOCUMENTS COLLECTION

DEC 1 1988

MONTANA STATE LIBRARY
1515 E. 6th AVE.
HELENA, MONTANA 59620

EFFICACY OF STRYCHNINE AND ZINC PHOSPHIDE BAITS FOR CONTROLLING BLACK-TAILED PRAIRIE DOGS

MONTANA STATE LIBRARY
S 632.63232 L10esz 1980 c.1 Sullins
Efficacy of strychnine and zinc phosphid
3 0864 00061791 3

by

Monty Sullins

Eastern District Biologist

ABSTRACT

Field evaluations were conducted in Custer County, Montana, during August 1979 to determine the comparative effectiveness of strychnine and zinc phosphide baits in reducing numbers of black-tailed prairie dogs. Prairie dog activity was reduced by 97.6 and 86.0 percent with strychnine, and 95.0 and 95.5 percent with zinc phosphide-treated sites. No major differences in efficacy were noted.

MONTANA DEPARTMENT OF LIVESTOCK
VERTEBRATE PEST CONTROL BUREAU
BRANDS-ENFORCEMENT DIVISION
HELENA, MONTANA 59601

January 1980

PLEASE RETURN

INTRODUCTION

This study is a continuation of field evaluations to compare the efficacy of strychnine and zinc phosphide grain baits in reducing activity of black-tailed prairie dogs. The study conducted by Sullins (1977) revealed that prebaiting with nontoxic grain prior to toxic bait application increased acceptance by prairie dogs of both zinc phosphide and strychnine grain baits. However, the U.S. Environmental Protection Agency and the U.S. Fish & Wildlife Service have recently indicated possible actions to cancel strychnine as a rodenticide. Zinc phosphide would then be the only toxicant registered in Montana for controlling prairie dogs. Comparison data are needed to insure that zinc phosphide bait is as effective as strychnine in reducing prairie dog activity when control procedures are deemed necessary.

OBJECTIVE

The objective of this investigation was to compare the effectiveness of both zinc phosphide and strychnine grain baits in reducing prairie dog activity.

STUDY AREA

Six study plots were selected 30 miles south of Miles City, Montana. The plots were located on sagebrush grasslands and were similar in vegetation type, physical aspects, and prairie dog numbers.

METHODS AND MATERIALS

Strychnine (Sebesta's 0.44%), strychnine with prebait (whole oats), and zinc phosphide (Pocatello Supply Depot, 2.0%) with prebait were applied to five separate plots. The sixth plot received no treatment and was used as a control. Prebait and bait were applied by use of motorcycle dispensers (Sullins 1980) and by hand baiting. Approximately 1 tablespoon of prebait or bait was systematically scattered over a 2 to 3-foot square area near each burrow entrance. Prebait was applied 3 days before toxic grain. These bait comparisons were completed during August 1979 in very dry environmental conditions.

Prairie dog activity before and after baiting was used as an index to effectiveness of each treatment. Binoculars were used to count active prairie dogs on each site three days before and three days after bait application. Three visual counts were made from a common vantage point each day at approximately the same time. An average of the nine counts before treatment and nine counts after treatment provided, respectively, the pre- and post-treatment indices. Percent reduction in prairie dog activity on each site was calculated by the formula:

$$\text{percent reduction in activity} = 1 - \frac{\text{post-treatment index}}{\text{pre-treatment index}} \times 100$$

RESULTS AND DISCUSSION

Prairie dog activity was reduced by 97.6 and 86.0 percent on the strychnine-treated sites compared to 95.0 and 95.5 percent on the zinc phosphide sites (Table 1). Under the environmental

conditions of this study, the zinc phosphide bait was either more effective of did not differ significantly from strychnine bait in reducing prairie dog activity. More long-term data comparing the toxicants under differing environmental conditions is needed before a final comparison can be determined.

TABLE 1. Percent Reduction in Activity on Sites Baited for Control of Black-Tailed Prairie Dogs; August 1979

Site	Application Method	Treatment	Percent Reduction
A	Motorcycle	Prebaited Strychnine	97.6
B	Motorcycle	Prebaited Zinc Phosphide	95.0
C	----	Control	0
D	Hand Baiting	Prebaited Strychnine	86.0
E	Hand Baiting	Prebaited Zinc Phosphide	95.5

LITERATURE CITED

Sullins, G. L. Evaluation of Prebaiting for Improving Bait Acceptance by Black-tailed Prairie Dogs. Montana Department of Livestock. 1977. 6 pp.

Sullins, G. L. Efficacy and Cost of Cyclone Seeders, Motorcycle Dispensers, and Hand Baiting for Controlling Black-tailed Prairie Dogs. Montana Department of Livestock. 1980.